



VAN BUREN COUNTY ROAD COMMISSION



TRANSPORTATION ASSET MANAGEMENT PLAN 2021-2024



WELCOME

Roads are one of the foundations for any civilization. Without a good road network, commerce cannot move, ideas cannot be exchanged, and people cannot interact. Every great civilization first created a road system to move their armies to expand their empires and engage in commerce. Today, roads are more important than ever. Sixty years ago, most people lived and worked in the same community and families had only one vehicle. Today, it is not unheard of for people to have a thirty to forty-minute commute and every one of driving age to have their own vehicle. All this added traffic has placed an increased stress load on roads built to older specifications.

Not only must roads be built, but they must also be maintained. The American Society of Civil Engineers has rated the infrastructure in America a "D". Roads were built without funding to maintain them. America focused on expansion and building new roads. We designated the

responsibility to maintain roads to the local communities that are serviced by this infrastructure but did not give the locals the tools with which to raise money to maintain the road system. While the revenues allocated for road maintenance and improvement have not changed, the costs have.

This Asset Management Plan is the tool for which we will decide how to spend future dollars to maintain and improve a road system throughout Van Buren County. The basic criteria for these decisions will be traffic counts, connectivity, PASER road ratings, and funding sources. We will work with our transportation partners to serve the travelers of Van Buren County as efficiently as we can.



Daniel Bishop
Managing Director





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ACRONYMS

Act 51: Michigan Public Act 51 of 1951

CPM: Capital Preventative Maintenance

FAST Act: Fixing America's Surface Transportation Act

FY: Fiscal Year

HMA: Hot Mix Asphalt

IBR: Inventory Based Rating

MAP-21: Moving Ahead for Progress in the 21st Century Act

MDOT: Michigan Department of Transportation

MTF: Michigan Transportation Fund

PASER: Pavement Surface and Evaluation Rating

RTF: Rural Task Force

STF: State Trunkline Fund

TAMC: Transportation Asset Management Council

TAMP: Transportation Asset Management Plan

VBCRC: Van Buren County Road Commission

FHWA: Federal Highway Administration

PPM: Pavement Preventative Maintenance

NHS: National Highway System

NCPP: National Center for Pavement Preservation

R&R: Reconstruction and Rehabilitation



INTRODUCTION

In 2002, the Michigan Legislature created the Transportation Asset Management Council (TAMC). The TAMC developed a statewide asset management practice first for federal-aid-eligible highways, followed by non-federal-aid-eligible roadways, and gravel road surfaces across state and local jurisdictions. The group developed tools that local agencies could use, as well as a methodology that all agencies could agree on for data collection and analysis.

Asset management is a process that uses data to manage and track assets, such as roads and bridges, in a cost-effective manner using a combination of engineering and business principles. The Van Buren County Road Commission utilizes four engineering and business principles in the development of this Transportation Asset Management Plan (TAMP); Pavement and Surface Evaluation

Rating (PASER) and/or Inventory Based Rating (IBR) ratings, traffic counts, connectivity routes, and available funding and budget. Collectively these principles provide investment on the routes that provide the greatest impact on the road network.

This TAMP describes the steps of the asset management process by which the Van Buren County Road Commission makes its program and project decisions. It also includes inventory and condition information, a description of performance goals and outcomes, analyzes risk management contingency plans, and outlines a financial plan. Finally, this TAMP includes a 5-year plan, estimating future costs and budgets.



ASSET INVENTORY

Building a mile of new road can cost over \$1 million due to the large volume of materials and equipment that are necessary. The high cost of constructing road assets underlines the critical nature of properly managing and maintaining the investments made in this vital infrastructure. The specific needs of every mile of road within an agency's overall road network is a complex assessment, especially when considering rapidly changing conditions and the varying requirements of road users; understanding each road-mile's needs is an essential duty of the road agency.

In Michigan, many different governmental units (or agencies) own and maintain roads, so it can be difficult for the public to understand who is responsible for items such as planning and funding construction projects, patching, repairs, traffic control, safety, and winter maintenance for any given

road. MDOT is responsible for state trunkline roads, which are typically named with "M", "I", or "US" designations regardless of their geographic location in Michigan. Cities and villages are typically responsible for all public roads within their geographic boundary with the exception of the previously mentioned state trunkline roads managed by MDOT. County road commissions (or departments) are typically responsible for all public roads within the county's geographic boundary, with the exception of those managed by cities, villages, and MDOT.

In cases where non-trunkline roads fall along jurisdictional borders, local and intergovernmental agreements dictate ownership and maintenance responsibility. Quite frequently, roads owned by one agency may be maintained by another agency because of geographic features that make it more cost-effective for a neighboring



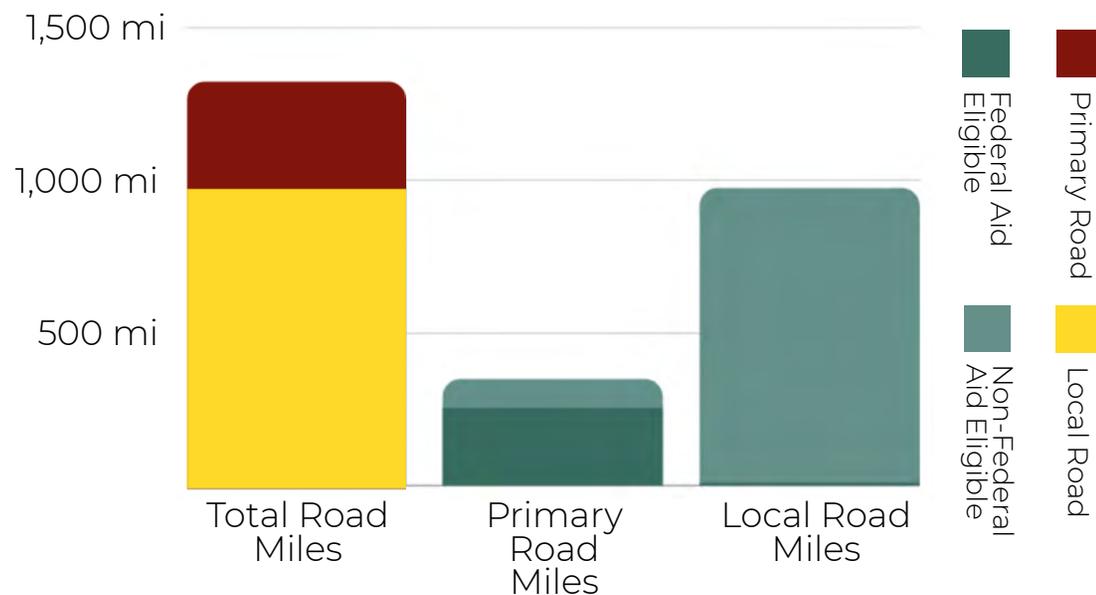
agency to maintain the road instead of the actual road owner. Other times, road agencies may mutually agree to coordinate maintenance activities in order to create economies of scale and take advantage of those efficiencies.

Michigan Public Act 51 of 1951 (PA 51), which defines how funds from the Michigan Transportation Fund (MTF) are distributed to and spent by road-owning agencies, classifies roads owned by VBCRC as either county primary or county local roads. State statute prioritizes expenditures on the county's primary road network.

The Van Buren County Road Commission (VBCRC) is responsible for 1,318.66 centerline of certified public roads. 347.06 of these miles are considered county primary roads and 971.6 miles are considered county local roads.

Approximately 73% (or 253.35 miles) of these county primary roads are classified as federal aid eligible, which allows them to receive federal funding for their maintenance and construction. Only 1% of County Local roads are considered federal aid eligible, which means state and local funds must be used to manage these roads.

For more details on locations and sizes of assets, please refer to the agency contact listed in the Introduction of this pavement asset management plan.



PAVEMENT CONDITIONS

The road characteristic that road users most readily notice is surface condition. Surface condition is a major factor in determining the most cost-effective treatment—that is, routine maintenance, capital preventive maintenance, or structural improvement—for a given section of roadway. The VBCRC uses surface condition and age to anticipate when a specific section of roadway will be a potential candidate for preventive maintenance. Surface condition data enables VBCRC to evaluate the benefits of preventive maintenance projects and

to identify the most cost-effective use of road construction and maintenance dollars. Historic surface condition data can be used to predict future road conditions based on budget constraints and to determine if a road network's condition will improve, stay the same, or degrade at the current or planned investment level. This analysis helps to determine how much additional funding is necessary to meet a network's condition improvement goals.

VBCRC is committed to monitoring the condition of its road network and using



surface condition data to drive cost-effective decision-making and preservation of valuable road assets. VBCRC uses the Pavement Surface Evaluation and Rating (PASER) system for asphalt surfaces, which has been adopted by the TAMC for measuring statewide pavement conditions, to assess its paved roads. The PASER system provides a simple, efficient, and consistent method for evaluating road conditions through visual inspection. More information regarding the PASER system can be found in the Appendix.

The surface condition of unpaved roads can rapidly change, which makes it difficult to obtain a consistent surface condition rating over the course of weeks or even days. The PASER system works well on most paved roads, which have a relatively stable surface condition over several months, but it is difficult to adapt to unpaved roads. To address the need for a reliable condition assessment system for unpaved roads, the TAMC adopted the Inventory Based Rating

(IBR) System and VBCRC also uses the IBR System for rating its unpaved roads. The link to information about the IBR System can be found in the Appendix.

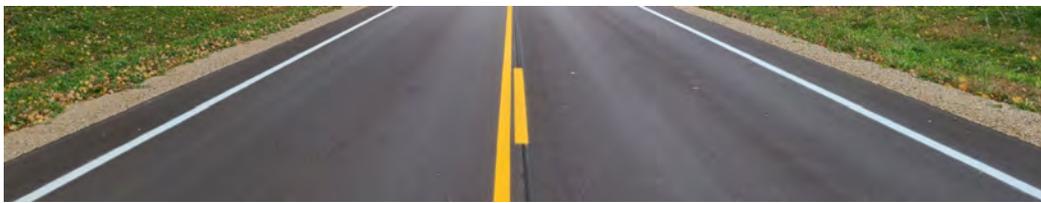
The IBR System gathers reliable condition assessment data for unpaved roads by evaluating three features—surface width, drainage adequacy, and structural adequacy. These three assessments come together to generate an overall 1-10 IBR rating.

A high IBR rating reflects a road with wide surface width, good drainage, and a well-designed and well-constructed base, whereas a low IBR rating reflects a narrow road with no drainage and little gravel. A good, fair, or poor assessment of each feature is not an endorsement or indictment of a road's suitability for use but simply provides context on how these road elements compare to a baseline condition.



Unpaved roads are constructed and used differently throughout Michigan. A narrow, unpaved road with no drainage and very little gravel (low IBR rating) may be perfectly acceptable in a short, terminal end of the road network, for example, on a road segment that ends at a lake or serves a limited number of unoccupied private properties. However, high-volume unpaved roads that serve agricultural or other industrial activities with heavy trucks and equipment will require wide surface width, good drainage, and a well-designed and well-constructed base structure (high IBR rating). Where the unpaved road is and how it is used determines how the road must be constructed and maintained: just because a road has a low IBR rating does not necessarily mean that it needs to be improved. The IBR rating is not an endorsement or indictment of the road's suitability for use but rather, an indication of a road's capabilities to support different traffic volumes and types in all weather.





“Good” roads, according to the TAMC, have PASER or IBR scores of 8, 9, or 10. Roads in this category have very few, if any, defects and only require minimal maintenance; they may be kept in this category longer using PPM. These roads may include those that have been recently sealcoated or newly constructed.



“Fair” roads, according to the TAMC, have PASER or IBR scores of 5, 6, or 7. Roads in this category still show good structural support, but their surface is starting to deteriorate. CPM can be cost-effective for maintaining the road’s “fair” condition or even raising it to “good” condition before the structural integrity of the pavement has been severely impacted. CPM treatments can be likened to shingles on a roof of a house: while the shingles add no structural value, they protect the house from structural damage by maintaining the protective function of a covering.



“Poor” roads, according to the TAMC, have PASER or IBR scores of 1, 2, 3, or 4. These roads exhibit evidence that the underlying structure is failing, such as alligator cracking and rutting. These roads must be rehabilitated with treatments like a heavy overlay, crush and shape, or total reconstruction.

VBCRC collects PASER data on 100 percent of its asphalt roads and collects 100 percent of its IBR data every three years. For federal-aid-eligible roads, the Road Commission partners with the Southwest Michigan Planning Commission and the Michigan Department of Transportation to collect data on half of this network annually. For all other data collection, the Road Commission utilizes its own staff and resources.

The TAMC has developed statewide definitions of road condition by creating three simplified condition categories—“good”, “fair”, and “poor”—having similar contexts with regard to maintenance and/or reconstruction.

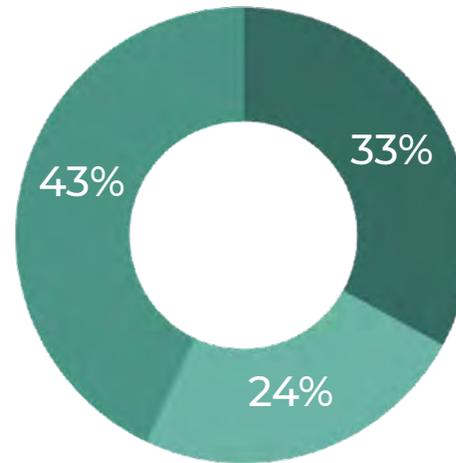
The definitions of these rating conditions and image examples are located on the left side of this page.



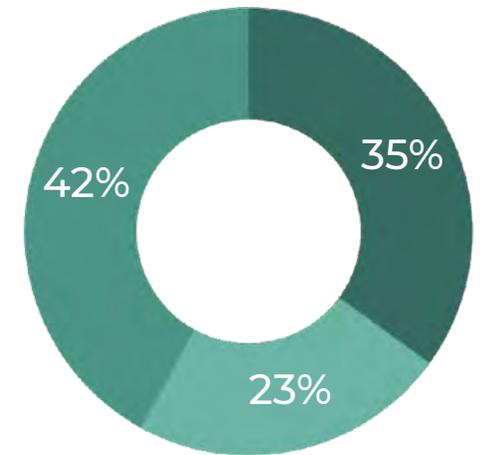
VBCRC's 2020 paved county primary road network has 33 percent of roads in the TAMC good condition category, 24 percent in fair, and 43 percent in poor. The paved county local road network has 35 percent in good, 23 percent in fair, and 42 percent in poor. In comparison, the statewide paved county primary road network has 20 percent of roads in the TAMC good condition category, 40 percent in fair, and 40 percent in poor. The statewide paved county local road network has 19 percent in good, 38 percent in fair, and 46 percent in poor.

Other road condition graphs can be viewed on the TAMC pavement condition dashboard, the link can be found in the Appendix.

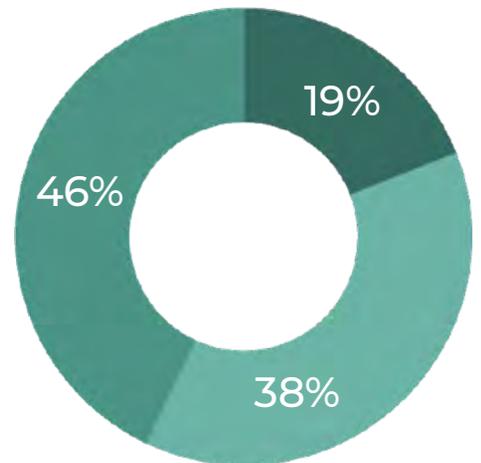
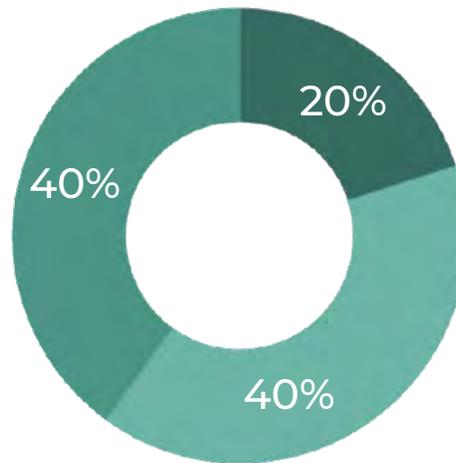
VBCRC Primary Road System



VBCRC Local Road System



■ Poor ■ Fair ■ Good



Statewide Primary Road System

Statewide Local Road System



PERFORMANCE GOALS AND OUTCOMES

Goals help set expectations for how roadway conditions will change in the future. Surface condition changes are influenced by water infiltration, soil conditions, sunlight exposure, traffic loading, and repair work performed. VBCRC is not able to control any of these factors fully due to seasonal weather changes, traffic pattern changes, and its limited budget. In spite of the uncontrollable variables, it is still important to set realistic network condition goals that efficiently use budget resources to build and maintain roads meeting taxpayer expectations.

GOALS FOR PAVED COUNTY PRIMARY ROADS

The overall goal for VBCRC's paved county primary road network is to maintain or improve road conditions network-wide from 2020 conditions.

VBCRC's network-level pavement condition strategy for paved county primary roads is:

1. Prevent those paved county primary roads in the good and fair categories (PASER 10 – 5) from deteriorating to the poor category (PASER 4 - 1). At the point which a roadway transitions from fair to poor, the cost to return that road segment to good or fair condition is exponentially higher than to maintain it in good or fair condition.



GOALS FOR PAVED COUNTY LOCAL ROADS

The overall goal for VBCRC's paved county local road network is to maintain or improve road conditions network-wide from 2020 conditions. At this time, the funding received by the Van Buren County Road Commission does not support investment in the local road system beyond general maintenance.

The VBCRC partners with the 18 Townships within Van Buren County to prioritize the funding of preventative maintenance and improvements efforts to the paved local road network.

VBCRC's network-level pavement condition strategy for paved county local roads is:

1. Build an effective partnership with the 18 Townships within Van Buren County to prevent those paved county local roads in the good and fair categories (PASER 10 - 5) from deteriorating to the poor category (PASER 4 - 1).

- a. Provide recommendations and maintenance and improvement options to meet this goal.
- b. Assist in the development of road plans for each of the 18 Townships to prioritize this goal.



GOALS FOR UNPAVED/GRAVEL ROADS

The overall goal for VBCRC's unpaved or gravel road network is to maintain or improve road conditions network-wide based upon 2020 levels.

Our unpaved gravel roads will be maintained through general maintenance through grading and scraping. Any improvements to the 2.122 miles of county primary gravel roads will be funded through the Road Commission's budget at which time they are prioritized through the criteria set forth in this plan. Improvements to the 243.121 miles of county local gravel roads will be funded through Township Contributions at which time they are prioritized through the Township's road budget. No additional gravel road miles will be paved without a planned and budgeted maintenance strategy.



PROJECT SELECTION

An important part of this asset management plan is the project selection criteria used to prioritize road improvement projects.

The Van Buren County Road Commission utilizes the following four criteria to determine the prioritization of projects:

1. PASER/IBR ratings – Prioritization of road projects in the good and fair categories ensures the most efficient use of the Road Commission’s financial resources. Improving roads from the poor category to the good or fair categories is exponentially more expensive and less efficient than

maintaining roads in good and fair condition. As such, the Road Commission will prioritize the more efficient improvements to good and fair condition road segments.

2. Traffic Counts – Prioritization of road projects based upon traffic counts ensures the financial resources of the Road Commission provide the greatest impact to the traveling public.

The Road Commission has developed a three-tiered prioritization level. Roads in the first category are more highly prioritized than those in the second and third categories and so on.

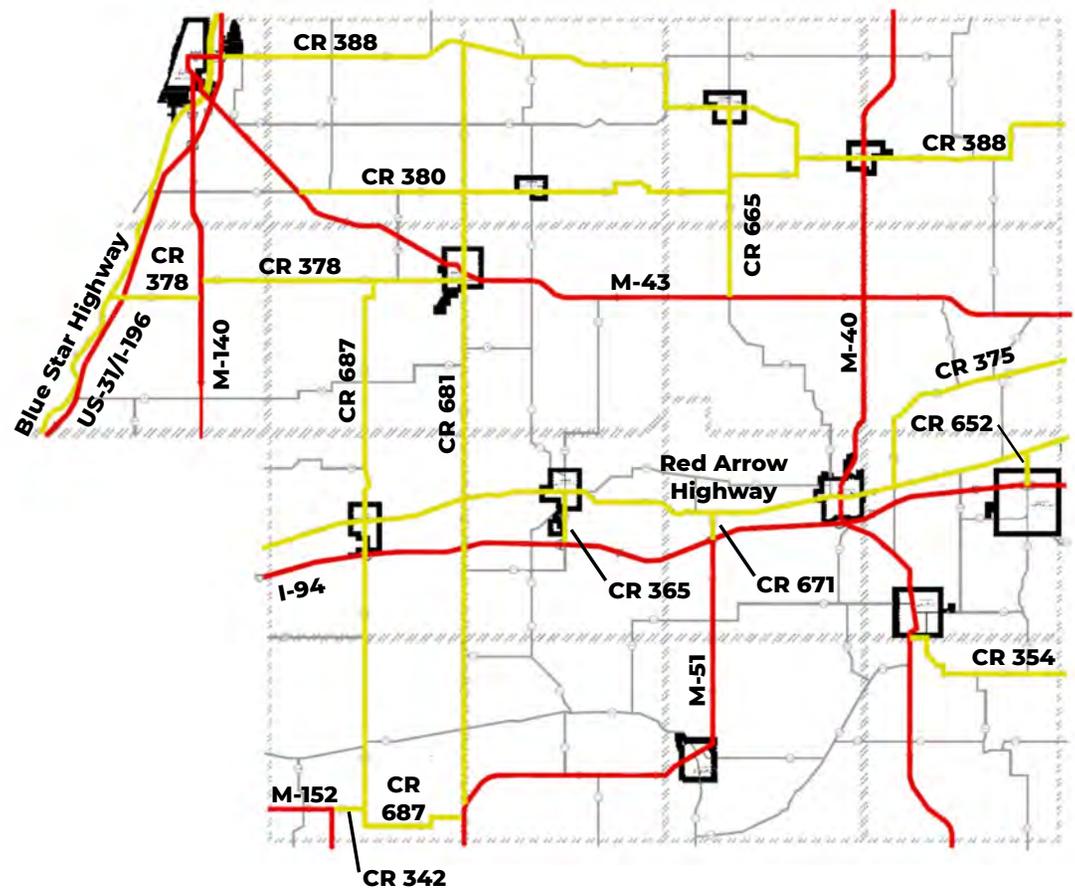


3. Connectivity/Arterial Routes – Prioritization of road projects based upon the connection of roads within the Road Commission’s jurisdiction is another criteria that ensures the proper utilization of resources. For the greatest impact to the traveling public, those road segments and/or routes that connect population centers with State highways or other population centers create the greatest positive impact. Additionally, while entire routes cannot necessarily be prioritized in any given budget year or even several budget years, it is important to coordinate the allocation of resources to complete improvements to improve an entire route rather than move resources around. For example, the positive impact to the traveling public is limited when a mile of improved roadway is surrounded by other unimproved road segments.

Alternatively, beginning with one segment of a route, followed by an attached segment, and another,

resulting in a route between population centers or state highways, ensures the greatest positive impact to the traveling public.

A map of the prioritized connectivity/arterial routes is shown below. MDOT's roads are shown in red, VBCRC's road system is shown in yellow.



4. Funding Sources – Prioritization of road projects based upon available funding sources (besides the Road Commission’s general funding through the Michigan Transportation Fund (MTF) or County-Wide Millage revenues) is an important factor in project selection. The Van Buren County Road Commission submits projects through various funding sources, including Congestion Mitigation and Air Quality (CMAQ), Economic Development, Safety Funds, Local Bridge Program, and other Federal and State Aid sources based upon the criteria of each funding source. Additionally, the Road Commission receives Township Contributions for which the Townships dictate the project criteria.

PERFORMANCE MEASURE

The Van Buren County Road Commission utilizes a various array of project types to address the needs of the road system. The selection of repair treatments for roads aims to balance

costs, benefits, and road life expectancy.

All pavements are damaged by water, traffic weight, freeze/thaw cycles, and sunlight. Each treatment and strategy—reconstruction, structural improvements, capital preventive maintenance, and others used by VBCRC—counter at least one of these pavement-damaging forces. The various “mix of fixes” are outlined on the next two pages. Every potential road treatment references the PASER at which the treatments are most effective.

These identified scores “trigger” the timing of projects appropriately to direct the right fix at the right time, thereby providing the best chance for a successful project. The Road Commission utilizes RoadSoft to evaluate the performance effectiveness of these treatments.



- Total Road Reconstruction: Reconstruction includes: 1) clearing the road right-of-way of brush, trees, and stumps; 2) installing a proper drainage system; 3) constructing a 12" sub-base of compacted sand, and a minimum of 8" of compacted gravel; and 4) HMA paving the roadway with a minimum of two courses of asphalt (base and top), with shoulder material being added to match the elevation of the new pavement.

- HMA Overlay (With or Without Milling): HMA overlay is placing 1 1/2"-2" of new pavement material over existing pavement that is not distorted, extensively cracked, or patched. Shoulder material is added to match the elevation of the new pavement. Milling, sometimes used prior to a HMA overlay, is grinding off the top layer of the existing pavement to place the new HMA surface on top of non-distorted pavement.

- Crush and Shape: Crushing and shaping the road creates a new structural base from the existing pavement. A pulverizer grinds the existing asphalt and 1-2" of the underlying gravel. The material is then re-graded and compacted.

- Chip Seal: Chip seal, or sealcoat, is a thin layer of emulsion or asphalt covered with a layer of crushed slag, rock, or stone to seal the surface of an existing paved roadway. Crack seal is occasionally applied prior to chip sealing a pavement surface. Fog seal can be applied over a chip seal for additional protection from weather.

- Slurry Seal/Microsurface: Slurry seal is an application of an emulsion, but with very small crushed rock as a part of the mixture. Microsurfacing is a polymer modified asphalt, aggregate, mineral filler, additives, and water. Microsurfacing aids in skid resistance on existing paved surfaces.



- **Crack Seal:** Crack sealing is a rubber material consisting of polymers, virgin rubber, and asphalt emulsion combined to form an elastic moisture barrier over cracks in the road that when heated and applied, will maintain their form over extreme heat and cold fluctuations in the roadway.

More in-depth descriptions of these fixes, as well as other maintenance projects, can be found in VBCRC's Transportation Partners Booklet. The link to this booklet can be found in the Appendix.

Type of Fix	Suggested PASER Rating	Life Expectancy
Total Road Reconstruction	1-3	14 Years
Hot-mix Asphalt (HMA) Overlay with/without Milling	4-7	5-10 Years
Crush and Shape	1-3	14 Years
Chip Seal	7-9	5 Years
Slurry Seal/Microsurface	7-9	4-7 Years
Crack Seal	5-8	2 Years



RISK MANAGEMENT

In consideration of VBCRC's goals, hazards and threats to the agency and to programs and projects VBCRC aims to complete have been identified and evaluated for their impact on the agency. These risks are both natural (e.g., extreme weather patterns and storm events) and man-made threats (e.g., cyberattacks and labor shortages). The hazards and threats can have system-wide impacts or focused impacts and can be caused by circumstances outside of VBCRC's control.

Transportation infrastructure is designed to be resilient. The system of interconnecting roads and bridges maintained by VBCRC provides road users with multiple alternate options in the event of an unplanned disruption of one part of the system. There are key links in the transportation system that may cause significant inconvenience to users if they are unexpectedly closed to

traffic. These key links may include some of the following characteristics:

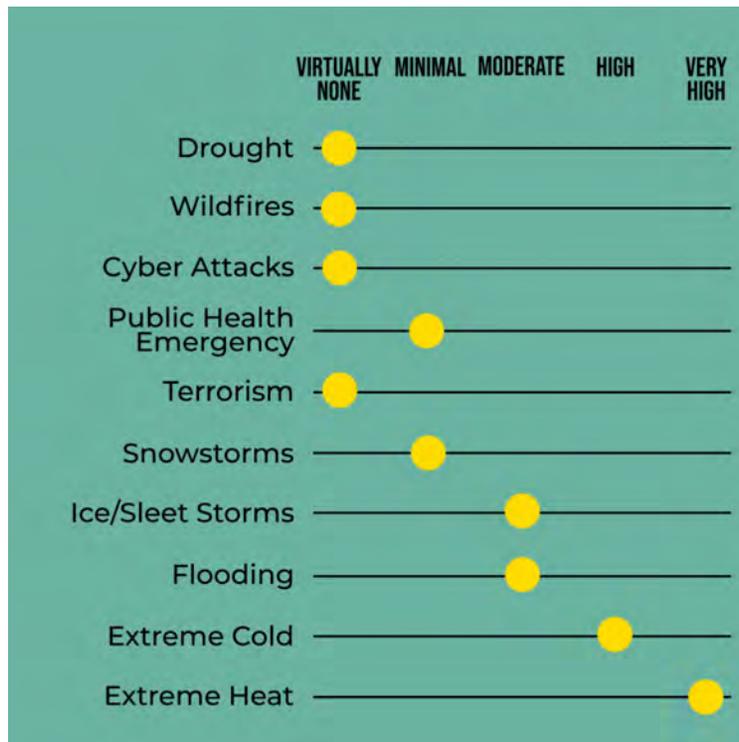
- Geographic divides: Areas where a geographic feature (river, lake, mountain or limited access road) limits crossing points of the feature.
- Emergency alternate routes for high-volume roads: Roads which are routinely used as alternate routes for high volume roads or roads that are included in an emergency response plan.
- Limited access areas: Roads that serve remote or limited access areas that result in long detours if closed.
- Main access to key commercial districts: Areas where a large number of large size businesses will be significantly impacted if a road is unavailable.



IMPACT OF THREATS TO VBCRC

Several threats to VBCRC's mission are outside of the control of VCBRC. These are usually naturally occurring weather patterns, but can also be categorized as extreme storm impacts, crises that impact human health, and human-designed attacks meant to stall or destroy for political or financial gain.

The overall impact of these hazards are outlined below.



AGENCY THREATS

Agency threats are risks that directly impact VBCRC's ability to develop a program or complete projects. These risks have varying levels of consequences to VBCRC, either in the way VBCRC does business or in VBCRC's ability or achieve its goals based on out mission, vision, and values. The severity of these threats are shown in the table below.

Threat Categories	Threats	Threat Consequences (1-minimal; 5-severe)
Labor	Staffing Shortage	4
	Inability to Attract New Talent	4
Technology	Ability to Procure and Manage Changing and New Transportation System Technologies	3
	Ability to Procure State-of-the-Practice Technology Support for Day-to-Day Staff Support	3
Financial	MTF and Local Funding Levels	5
	MTF and Local Funding Structure	5
	Changes in Regulations and VBCRC's Ability to Comply	2
	Trust Funding Levels/Trust Fund Cliff	1



PROGRAM THREATS

VBCRC's program threats can affect a project, multiple projects, or the ability to reach VBCRC's goals. These threats can be site-specific like weather conditions, or systematic like economic downturn. These threats and their consequence rating can be found below.

Threat Categories	Threats	Threat Consequences (1-minimal; 5-severe)
Systems Maintenance	Spikes in Maintenance Costs	4
	Needed Support for Winter Operations in Response to Severe Winter Season	3
Project-Costs	Spikes in Material Costs	4
	Spikes in Labor Costs	2
	Reoccurring Congestion	2
Climate Change	Long-term Climate Change and Threats to System Operations and Infrastructure	2
System Disruption	Economic Downturn	2
	Failure to Address Critical Functions	2
	Demographics	2
Project-level Disruptions	Extreme Weather Conditions at the Project Level	2
	Labor Disputes	1

CONSEQUENCE RATING

VBCRC's consequence ratings are chosen based on the degree of disruption to the transportation system if a hazard occurs. This rating system is numerical from 1 being minimal to 5 being severe. The definitions for these ratings can be found in the table below.

1	No loss or significant threat to health or life; limited effect on the outcomes and/or objectives of VBCRC; and impact can be managed within current resources.
2	Minor health and safety incident involving a member of the public; minor impact on service delivery; and impact can be managed within current resources with some re-planning.
3	Health and safety incident involving multiple members of the public; compromise of the strategic objectives and goals of VBCRC; and impact can be managed with some re-planning and modest extra financial or human resources.
4	Significant health and safety incident involving multiple members of the public; significant compromise of the strategic objectives and goals of VBCRC; and impact cannot be managed without re-prioritization of VBCRC programs.
5	Loss of life; severe compromise of the strategic objectives and goals of VBCRC; and impact cannot be managed without additional funding from government.



FINANCIAL PLANNING

Public entities must balance the quality and extent of services they can provide with the financial resources while maximizing how efficiently funds are used. VBCRC will overview its general expenditures and financial resources currently devoted to pavement maintenance and construction. This financial information is not intended to be a full financial disclosure or a formal report. Michigan agencies are required to submit an Act 51 Report to the Michigan Department of Transportation each year; this is a full financial report that outlines revenues and expenditures. This report can be obtained on our website at www.vbcrc.org.

COUNTY PRIMARY NETWORK

With recent changes to the funding the Van Buren County Road Commission receives through the Michigan Transportation Fund (MTF), the agency

now budgets approximately \$7.5 million annually on roadway preservation and improvement projects. Over the next three years, the VBCRC plans to continue budgeting \$7.5 million annually for county primary-network projects consisting of, but not limited to, reconstruction, overlay, culvert replacement, and preventive maintenance. Spending on projects depends on revenue from the Michigan Transportation Fund (MTF), county-wide road millage, township contributions, and federal/state aid programs.



COUNTY LOCAL NETWORK

Funding for preservation and improvement projects on the county local network is allocated from the 18 Townships within Van Buren County. These dollars come from an allocation to each Township from the county-wide road millage as well as each Township's general fund and/or Township road millage.

Annually, approximately \$4 million is spent on roadway preservation and improvement projects for the county's local road network. Over the next three years, VBCRC anticipates that this level of funding from the Townships will remain consistently between \$3.5 and \$4.5 million annually on county local-network projects consisting of, but not limited to, reconstruction, overlay, culvert replacement, and preventive maintenance.

GAP BETWEEN FUNDING AND GOALS

The current funding levels that VBCRC receives are not sufficient to meet the

goals for the paved county primary road network, the paved county local road network, and the unpaved road network. The Performance Goals section of this plan provides further detail about the goals and provides further detail on the shortfall given the current budget. However, VBCRC believes that the overall condition of this network can be maintained or improved with additional funding for construction and maintenance.



MULTI-YEAR PLANNING

VBCRC plans construction and maintenance projects several years in advance. A multi-year planning threshold is required due to the time necessary to plan, design, and finance construction and maintenance projects on the paved county primary road network. This includes planning and programming requirements from state and federal agencies that must be met prior to starting a project and can include studies on environmental and archaeological impacts, review of construction and design documents and plans, documentation of rights-of-way ownership, planning and permitting for stormwater discharges, and other regulatory and administrative requirements. Also included is a coordination of efforts with all ROW users to ensure a timely and efficient work is possible.

Per PA 499 of 2002 (later amended by PA 199 of 2007), road projects for the upcoming three years are required to be reported annually to the TAMC. Planned projects represent the best estimate of future activity; however, changes in design, funding, and permitting may require VBCRC to alter initial plans. Project planning information is used to predict the future condition of the road networks that VBCRC maintains.

VBCRC has created a five year plan consisting of projects planned for the primary road system through 2026 totally over \$36 million, as well as Federal and State Aid submissions that will be added to the five year plan accordingly when awarded or added to the plan as funding allows if not awarded. All projects of these projects can be found on the following pages.



FIVE YEAR PLAN FOR PRIMARY ROAD SYSTEM

The following list of projects is the planned 5 year road plan for the primary road system. This list is subject to change based upon funding, project modifications or other unforeseen issues.

PROJECT LOACTION	PROJECT SCOPE	ESTIMATED COST
2022		
CR 380; Village of Breedsville to Bloomingdale Township Line	Top Course Asphalt	\$ 704,000.00
CR 374; Red Arrow Highway to 45th Street	Top Course Asphalt	\$ 538,000.00
CR 687; 90th Avenue to CR 342	Trench, Widen, Crush, Shape, and Pave	\$ 520,000.00
CR 687; South of I-94	Culvert Replacement	\$ 500,000.00
CR 380; Columbia Township Line to CR 665	Drainage Corrections, Crush, Shape, Base Pave	\$ 834,294.00
Red Arrow Highway; Village of Paw Paw to CR 671	Mill and Fill	\$ 1,000,000.00
CR 215; Village of Breedsville to M-43	Crush, Shape, Pave	\$ 915,000.00
Primary Sealcoat and Fog Seal	60 miles	\$ 1,980,000.00
Primary Crackseal		\$ 100,000.00
TOTAL:		\$ 7,091,294.00



FIVE YEAR PLAN FOR PRIMARY ROAD SYSTEM (CONT.)

PROJECT LOACTION	PROJECT SCOPE	ESTIMATED COST
2023		
CR 689; CR 388 to 8th Avenue	Road Rehabilitation	\$ 940,000.00
CR 388; 29th Street to CR 653 S	Restore and Rehab	\$ 1,790,000.00
CR 380; Columbia Township Line to CR 665	Top Course Asphalt	\$ 313,500.00
Red Arrow Highway; CR 671 to Village of Lawrence	Mill and Fill	\$ 977,000.00
CR 352; CR 687 to 60th Street	Crush, Shape, Pave	\$ 1,200,000.00
Primary Sealcoat and Fog Seal	60 miles	\$ 2,079,000.00
Primary Crackseal		\$ 100,000.00
TOTAL:		\$ 7,399,500.00



FIVE YEAR PLAN FOR PRIMARY ROAD SYSTEM (CONT.)

PROJECT LOACTION	PROJECT SCOPE	ESTIMATED COST
2024		
Federal/State Aid Projects or Submitted Projects	TBD Once Funding is Allocated	\$ 3,000,000.00
Red Arrow Highway; Village of Lawrence to CR 681	Mill and Fill	\$ 1,830,000.00
Primary Sealcoat and Fog Seal	60 Miles	\$ 2,182,950.00
Primary Crackseal		\$ 100,000.00
TOTAL:		\$ 7,112,950.00



FIVE YEAR PLAN FOR PRIMARY ROAD SYSTEM (CONT.)

PROJECT LOCATION	PROJECT SCOPE	ESTIMATED COST
2025		
Federal/State Aid Projects or Submitted Projects	TBD Once Funding is Allocated	\$ 3,000,000.00
CR 352; 60th Street to CR 681	Crush, Shape, Pave	\$ 1,200,000.00
CR 388; CR 380 to Village of Gobles	Mill and Fill	\$ 575,000.00
Primary Sealcoat and Fog Seal	60 miles	\$ 2,292,097.50
Primary Crackseal		\$ 100,000.00
TOTAL:		\$ 7,167,097.50



FIVE YEAR PLAN FOR PRIMARY ROAD SYSTEM (CONT.)

PROJECT LOACTION	PROJECT SCOPE	ESTIMATED COST
2026		
Federal/State Aid Projects or Submitted Projects	TBD Once Funding is Allocated	\$ 3,000,000.00
CR 653; Red Arrow Highway to 22nd Street (Van Kal)	Crush, Shape, Pave	\$ 2,056,000.00
Primary Sealcoat and Fog Seal	60 Miles	\$ 2,406,702.38
Primary Crackseal		\$ 100,000.00
TOTAL:		\$ 7,562,702.38



FEDERAL AND STATE AID SUBMISSIONS

The following projects have been submitted for funding through various funding sources as indicated. Once funding is allocated, these projects will enter into the 5 year road plan accordingly. Additionally, projects that are NOT awarded funding will be added to the 5 year road plan as funding allows.

SUBMITTED FOR AID 2024-2026	FUNDING PROGRAM	SCOPE OF WORK	EST. COSTS	EST. RC COST SHARE
CR 352; CR 215 to CR 358	RTF 2024-2026	Crush and Shape	\$ 1,540,000.00	20%
CR 652; CR 354 to 72nd Avenue	RTF 2024-2026	Mill and Fill	\$ 425,000.00	20%
CR 681; M-51 to CR 352	RTF 2024-2026	Crush and Shape	\$ 1,315,000.00	20%
Red Arrow Highway; CR 681 to Village of Lawrence	RTF 2024-2026	Crush and Shape	\$ 1,830,000.00	20%
CR 388; Village of Bloomingdale to CR 380	RTF 2024-2026	Mill and Fill	\$ 373,000.00	20%
CR 652; 72nd Avenue to Robinson Avenue	RTF 2024-2026	Mill and Fill	\$ 658,750.00	20%
CR 687; CR 372 to CR 376	RTF 2024-2026	Crush and Shape	\$ 1,956,521.00	20%
Red Arrow Highway; 26th Street to CR 652 S	RTF 2024-2026	Mill and Fill	\$ 400,000.00	20%
Red Arrow Highway; 59.5 Street to CR 681	RTF 2024-2026	Mill and Fill	\$ 300,000.00	20%



FEDERAL AND STATE AID SUBMISSIONS (CONT.)

SUBMITTED FOR AID 2024-2026	FUNDING PROGRAM	SCOPE OF WORK	EST. COSTS	EST. RC COST SHARE
CR 364; CR 657 to Western Avenue	KATS 2024-2026	Crush and Shape	\$ 1,058,000.00	20%
CR 652; 72nd Avenue to Robinson Avenue	KATS 2024-2026	Mill and Fill	\$ 658,750.00	20%
CR 665; 64th Avenue to CR 358	KATS 2024-2026	Crush and Shape	\$ 1,035,500.00	20%
CR 671; Red Arrow Highway to 60th Avenue	KATS 2024-2026	Mill and Fill	\$ 330,200.00	20%
CR 653; M-40 to I-94	Urban 2024-2026	Crush and Shape	\$ 839,500.00	18.15%
Red Arrow Highway; City of Hartford to 59.5 Street	Urban 2024-2026	Mill and Fill	\$ 979,625.00	18.15%
CR 374; 39th Street to Village of Paw Paw	Urban 2024-2026	Crush and Shape	\$ 632,500.00	18.15%
CR 665; Village of Paw Paw to Bridge	Urban 2024-2026	Crush and Shape	\$ 1,293,750.00	18.15%
CR 380; Blue Star Highway to City of South Haven	Urban 2024-2026	Crush and Shape	\$ 165,000.00	18.15%
Kalamazoo Street; Blue Star Highway to City of South Haven	Urban 2024-2026	Mill and Fill	\$ 115,000.00	18.15%
Ruggles Road; 20th Avenue to Blue Star Highway	Urban 2024-2026	Crush and Shape	\$ 195,000.00	18.15%
Red Arrow Highway @ CR 652 S	CMAQ 2024-2026	Signal Upgrade	\$ 45,000.00	20%



OPTIONAL PROJECTS

The following are optional projects to be added to the 5 year primary road plan as funding allows.

PROJECT LOCATION	SCOPE OF WORK	ESTIMATED COSTS
CR 380; CR 665 to CR 388	TBD	\$ TBD
CR 388; CR 653 to 12th Avenue	Trench, Widen, Crush, Shape, Pave	\$ 930,000.00
CR 388; 12th Avenue to County Line	Trench, Widen, Crush, Shape, Pave	\$ 1,315,000.00
CR 378; City of Bangor to M-140	TBD	\$ TBD
CR 665; Fisk Lake Road to M-43	Mill and Fill	\$ 720,800.00
CR 665; 60th Avenue to CR 358	Mill and Fill	\$ 272,000.00
CR 388; 62nd Street to Grand Junction	Mill and Overlay	\$ 654,051.00
CR 681 @ Red Arrow Highway	Intersection Improvements	\$ TBD



CONCLUSION

In the early 1990s, new legislative and reporting requirements gave rise to the adoption of asset management practices. Today, the widely demonstrated benefits of asset management in transportation decision-making encourage its adoption by agencies such as the Van Buren County Road Commission.

Many challenges continue to intensify, such as stretched budgets, declining staff resources, more stringent accountability requirements, deteriorating transportation infrastructure, etc. Transportation Asset Management is the key to finding the most effective and cost-efficient balance of preserving, upgrading, and replacing highway assets in this environment.

In this Asset Management Plan, the Van Buren County Road Commission has focused transportation asset

management decision-making on factors, such as connectivity, PASER data collection, traffic volume, and surface condition for improvement. This Plan creates a clear and concise path for the Van Buren County Road Commission to meet its goals to improve the road network under its jurisdiction.



SUMMARY

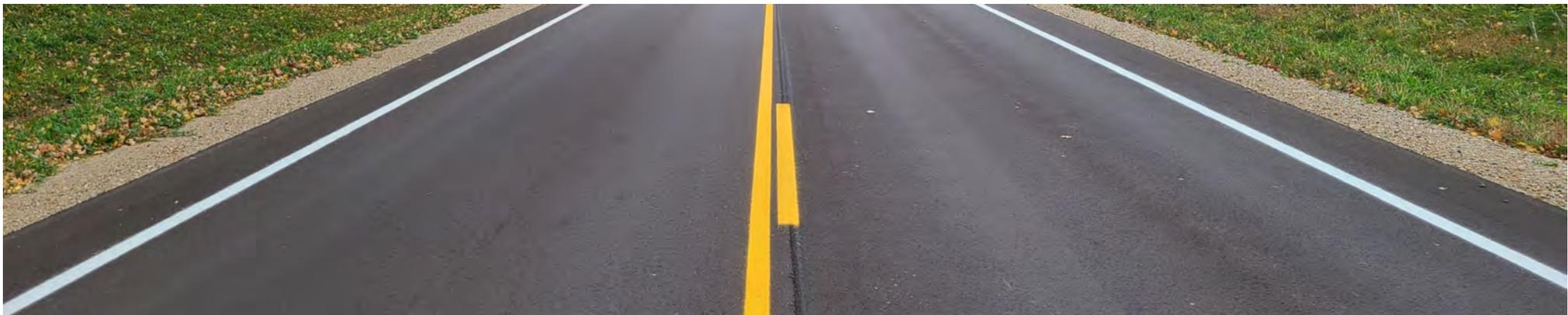
The objective of road asset management is to ensure that assets provide their required levels of services in the most cost-effective manner.

To efficiently utilize Michigan Transportation Funds, Federal and State Aid, and other local funds requires good planning and the accurate identification of appropriate rehabilitation projects. Assessing roadway conditions is an essential step in this process. Finding effective and creative solutions for stretching existing funds to provide for longevity of the road network is also an important consideration. Finally,

identifying the roadways that provide the greatest benefit to the traveling public is of utmost importance.

The Van Buren County Road Commission continues to focus on making improvements to the Primary Roads under its jurisdiction as these are the roadways that provide the greatest positive impact.

This Asset Management Plan focuses on the management of the Van Buren County Road Commission's road infrastructure assets, which include road surfaces, paved and unpaved, and bridges.



APPENDIX

More information regarding PASER ratings, collection of data, and TAMC's role in PASER ratings:
https://www.michigan.gov/tamc/0,7308,7-356-82158_82627---,00.html

More information regarding IBR ratings: <https://ctt.mtu.edu/inventory-based-rating-system>

The Transportation Asset Management Council's Dashboard: <https://www.michigan.gov/tamc/>

Van Buren County Road Commission's Transportation Partners Booklet and Mix of Fixes:
<https://www.vbcrc.org/transportationpartners>

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Van Buren County Road Commission's 2021 Bridge Asset Management Plan



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INTRODUCTION

The Van Buren County Road Commission (VBCRC) seeks to implement an asset management program for its bridge structures. Asset management is a cost-effective program of reconstruction, rehabilitation, preventive maintenance, and scheduled maintenance designed to maximize the useful service life of the local bridges under its jurisdiction and to determine where new construction or reconstruction would best benefit its road and bridge network.

The goal of the program is to preserve our local bridge network in the best possible condition within the means of our financial resources. Nonetheless, the VBCRC recognizes that limited funds are available for improving the bridge network. Since preservation strategies like preventive maintenance are generally a more effective use of these funds than costly alternative management strategies like major rehabilitation or replacement, we seek to identify those bridges that will benefit from a planned maintenance program.

Therefore, the VBCRC objectives for implementing this asset management plan are:

- Establishing the current condition of the county’s bridges
- Developing a “mix of fixes” that will:
 - Program regular scheduled maintenance actions to impede deterioration of bridges in good condition
 - Implement selective corrective repairs or rehabilitation to degraded bridge elements and in order to restore functionality
 - Identify and program those eligible bridges in need of replacement
- Identifying available funding sources, such as:
 - Dedicated county resources
 - County funding through Michigan’s Local Bridge Program
 - Opportunities to obtain other funding
- Prioritizing the programmed actions within available funding limitations
- Having 95% of its bridges rated fair/good and having less than 4% classify as poor within 10 years.

The definitions of technical terms used in this bridge asset management plan can be found in our agency's overall asset management plan, Van Buren County Road Commission Transportation Asset Management Plan, available at VBCRC.org/TAMP.

1. BRIDGE ASSETS

Inventory

The VBCRC is responsible for 73 local bridges. Of the VBCRC's 73 structures, 10 are concrete bridges, 7 are steel bridges, 31 are pre-stressed concrete bridges, 7 aluminum culverts, and 18 are timber bridges.

Locations and sizes of each asset can be found in VBCRC's MiBRIDGE database. For more information, please contact: MDOT-MiBridge-Admin@michigan.gov

Condition

The distribution of overall condition, based on the National Bridge Inspection Standards rating scale, is: 6 (8.2%) are poor or lower; 36 (49.3%) are fair; 31 (42.5%) are good.

A summary and distribution of the bridge population is presented in the following table:

Bridge Type	Number of Bridges and Condition as of 2020			
	Total	Poor	Fair	Good
Aluminum – Culvert	7	0	0	7
Concrete – Culvert	7	0	5	2
Concrete – Tee beam	3	1	2	0
Prestressed concrete – Box beam/girders	26	0	15	11
Prestressed concrete – Channel beam	1	0	0	1
Prestressed concrete – Multistringer	4	0	1	3
Steel – Culvert	4	1	1	2
Steel – Multistringer	3	0	2	1
Timber – Slab	18	4	10	4
Total	73	6	36	31
Percentage (%)	100%	8.2%	49.3%	42.5%

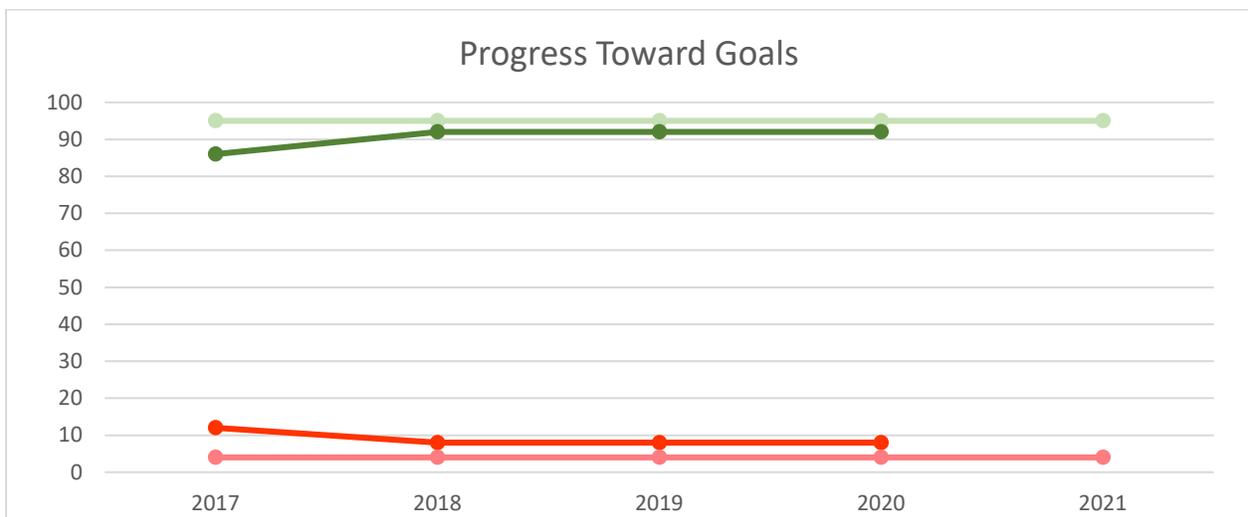
Township	Culvert Condition by Township				
	Total	Poor	Fair	Good	Not Rated
Almena	85	0	0	9	76
Antwerp	30	0	0	4	26
Arlington	164	1	3	15	145
Bangor	185	8	31	111	35
Bloomington	143	0	0	21	122
Columbia	132	1	2	36	93
Covert	157	9	32	86	30
Decatur	53	0	0	2	51
Geneva	192	13	33	105	41
Hamilton	52	0	0	2	50
Hartford	131	0	0	6	125
Keeler	51	0	0	9	42
Lawrence	102	0	0	7	95
Paw Paw	55	0	0	1	54
Pine Grove	47	0	0	0	47
Porter	32	0	0	1	31
South Haven	111	0	3	16	92
Waverly	96	0	0	5	91
Total	1818	32	104	436	1246

Statewide, MDOT’s statistics for local agency bridges show that 8.5% are poor and 91.5% are good/fair, indicating that the VBCRC has a lesser percentage of poor bridges compared to the statewide average for local agencies. Correspondingly, the VBCRC has 91.8% of its bridges in fair/good condition versus the statewide average of 91.5% for local agency bridges. Statewide, 8.5% of local agency bridges are classified as poor compared to 8.2% of the VBCRC’s bridges.

Goals

The VBCRC’s long-range goals in formulating this bridge asset management plan are to have 95% or more of the agency's local bridges in fair to good condition and to have less than 4% classify as poor within 10 years.

Several metrics will be used to assess the effectiveness of this asset management plan. The VBCRC will monitor and report the annual change in the number of its bridges rated fair/good (5 or higher) and the annual change in the number of its bridges classified as poor. A tracking graph will be used to monitor progress toward a long-range objective of having 95% of its bridges rated fair/good and having less than 4% classify as poor.



Rated Fair/Good Goal	Actual Rated Fair/Good	Actual Rated Poor	Rated Poor Goal
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The asset management plan is also intended to extend the period of time that bridges remain in good and fair condition, thereby increasing their useful service life and reducing future maintenance costs. Based on past inspection records and condition ratings, the VBCRC will establish a baseline of past performance by determining the average period of time that a bridge remains in good or fair condition. The performance measure will be the increased average amount of time a bridge is in the good or fair condition status after implementation of the asset management strategy when compared to the baseline time before implementation.

Prioritization and Planned Projects

The aim of this plan is to address the structures of critical concern by targeting elements rated as being in poor condition and to improve the overall condition of the bridge network to good or fair condition. The VBCRC uses a prioritization formula that evaluates five factors and weights them as follows: condition – 60%, load capacity –3%, traffic –5%, safety –30%, and detour –2%. There are several components within each factor that are used to arrive at its score. Each project under consideration is scored, and its total score is then compared with other proposed project to establish a priority order.

The VBCRC’s asset management plan employs “mix of fixes” strategy made up of preventive maintenance.

Replacement involves substantial changes to the existing structure, such as bridge deck replacement, superstructure replacement, or complete structure replacement, and is intended to improve critical or closed bridges to a good condition rating.

Rehabilitation is undertaken to extend the service life of existing bridges. The work will restore deficient bridges to a condition of structural or functional adequacy and may include upgrading geometric features. Rehabilitation actions are intended to improve the poor or fair condition bridges to fair or good condition.

Preventive maintenance work will improve and extend the service life of fair bridges and will be performed with the understanding that future rehabilitation or replacement projects will contain appropriate safety and geometric enhancements. Preventive maintenance projects are directed at limited bridge elements that are rated in fair condition with the intent of improving these elements to a good rating. Most preventive maintenance projects will be one-time actions in response to a condition state need. Routine preventive work will be performed by contracted agencies.

The VBCRC’s **scheduled maintenance** program is an integral part of the preservation plan, and is intended to extend the service life of fair and good structures by preserving the bridges in their current condition for a longer period of time. Scheduled maintenance is proactive and not necessarily condition driven. In-house maintenance crews will perform much of this work.

Several of the severely degraded and poor bridges require replacement or major rehabilitation. Many of the remaining bridges require one-time preventive maintenance actions to repair defects and restore the structure to a higher condition rating. Most bridges are included in a scheduled maintenance plan with appropriate maintenance actions programmed for groups of bridges of similar material and type, bundled by location.

The replacement, rehabilitation, and preventive maintenance projects are generally eligible for funding under the local bridge program, and any requests for funding will be submitted with VBCRC’s annual applications.

The “mix of fixes” strategy employs made up of preventive maintenance. Implementing this balanced mixture, as described in the Operations and Maintenance Plan below, will increase the number of bridges improved each year and preserve the overall health of VBCRC’s bridge network.

The VBCRC's implementation of a management and preservation strategy begins with a biannual review of the current condition of each of the agency's bridges using the NBIS inspection data contained in the *MDOT Bridge Safety Inspection Report* and the inspector's work recommendations contained in MDOT's *Bridge Inspection Report*, linked in the Appendix. The inspection inventory and condition, the management and preservation needs are determined for each bridge and the corresponding actions are identified and assembled on a spreadsheet, sorted by bridge material and type, and inspection follow-up actions can be obtained by contacting VBCRC's main office at 269-674-8011.

The management and preservation actions are selected in accordance with criteria contained in the *Summary of Preservation Criteria from MDOT Project Scoping Manual* table (below). These criteria are based on the *MDOT Project Scoping Manual*, which targets MDOT's trunk line bridges. The VBCRC has modified the selection criteria slightly to address its local bridge network better.

A primary objective of the VBCRC's asset management plan is improvement of five bridges rated poor (4 or lower) to a rating of fair (5 or higher) within 10 years through management and/or preservation activities consisting of replacement, rehabilitation, and preventive maintenance. The work has been prioritized by considering each individual bridge's needs, its importance, the present costs of improvements, and the impact of deferral (i.e., cost increase due to increased degradation). The 10-year plan to achieve the VBCRC's long-term objective incorporates replacement, rehabilitation, and preventive maintenance activities on a biannual basis in a way designed to improve the condition of bridges currently rated poor (4) or lower and preserve bridges currently rated fair (5) or higher in their current condition in order to extend their useful service life.

Summary of Preservation Criteria from MDOT Project Scoping Manual

Preservation Action	Bridge Selection Criteria	Expected Service Life
Replacement		
Total Replacement	<ul style="list-style-type: none"> - NBI Rating of 3 or less - <i>OR</i> when cost of rehabilitation exceeds cost of replacement - <i>OR</i> when bridge is scour critical with no counter-measures available 	70 years
Superstructure Replacement	<ul style="list-style-type: none"> - NBI Rating for superstructure of 4 or less - <i>OR</i> when cost of rehabilitating superstructure and deck exceeds replacement cost 	40 years
Deck Replacement <ul style="list-style-type: none"> • Epoxy Coated Steel • Black Steel 	Use guidelines in MDOT's <i>Bridge Deck Preservation Matrix</i> <ul style="list-style-type: none"> - NBI Rating of 4 or for deck surface and deck bottom - <i>OR</i> when deck replacement cost is competitive with rehabilitation 	70 years 40 years
Substructure Replacement (Full or Partial)	<ul style="list-style-type: none"> - NBI Rating of 4 or less for abutments, piers, or pier cap - <i>OR</i> existence of open vertical cracks, signs of differential settlement, or presence of active movement - <i>OR</i> bridge is scour critical with no counter-measures available 	40 years
Rehabilitation		
Concrete Deck Overlays <ul style="list-style-type: none"> • Deep • Shallow • HMA/Membrane • HMA Cap 	Guidelines in MDOT's <i>Bridge Deck Preservation Matrix</i> <ul style="list-style-type: none"> NBI Deck Rating <5 for surface and >5 for bottom NBI Deck Rating <5 for surface and >4 for bottom NBI Deck Rating <5 for surface and >4 for bottom NBI Deck Rating <5 for surface and <4 for bottom 	25 years 12 years 8 years 3 years
Railing Retrofit/Replacement	<ul style="list-style-type: none"> - NBI Deck Rating greater than 5 - <i>OR</i> Railing/Barrier rated less than 5 - <i>OR</i> Safety Improvement is needed 	
Steel Beam Repairs	<ul style="list-style-type: none"> - More than 25% section loss is present in an area of the beam that affects load carrying capacity - <i>OR</i> in order to correct impact damage that impairs beam strength 	
Prestressed Concrete Beam Repairs	<ul style="list-style-type: none"> - Repair ends of prestressed I-beams when more than 5% spalling is present - <i>OR</i> repair areas to correct impact damage that impairs beam strength or exposes prestressing strands 	
Repair/Replace Culvert	<ul style="list-style-type: none"> - NBI Rating of 4 or less for culvert or drainage outlet structure 	

	- <i>OR</i> existence of open vertical cracks, signs of deformation, movement, or differential settlement	
Repair/Replace Retaining Wall	- NBI Rating of 4 or less for retaining wall - <i>OR</i> existence of open vertical cracks, signs of differential settlement, or presence of active movement	
Pin and Hanger Replacement	- NBI Rating for elements is 4 or lower; presence of excessive section loss, severe pack rust, or out-of-plane distortion	
Substructure Concrete Patching and Repair	- NBI Rating for abutments or piers is 5 or 4 and less than 30% of the surface is spalled and delaminated - <i>OR</i> in response to inspector's work recommendation for substructure patching	
Preventive Maintenance		
Repair/Replace Deck Joint	- Include when doing deep or shallow overlays - <i>OR</i> NBI Rating for joint is 4 or lower - <i>OR</i> joint is leaking heavily	
Repair/Replace Steel Bearing	- NBI Rating for girders and deck is 5 or higher and rating for bearings is 4 or lower	
Complete Painting	- NBI Rating for paint condition is 3 or lower - <i>OR</i> in response to inspector's work recommendation for complete painting	15 years
Zone Painting	- NBI Rating for paint condition is 5 or 4 - <i>OR</i> less than 15% of existing paint area has failed and remainder of paint system is in good or fair condition	10 years
HMA Overlay Cap without Membrane	- NBI Rating of 3 or less for deck surface and deck bottom; temporary holdover to improve ride quality for a bridge in the 5-year plan for rehab/replacement	3 years
Concrete Deck Patching	- Deck Surface Rating of 5, 6, or 7 with minor delamination and spalling - <i>OR</i> in response to inspector's work recommendation	5 years
Channel Improvements	- Removal of vegetation, debris, or sediment from channel and banks to improve channel flow - <i>OR</i> in response to inspector's work recommendation	
Scour Countermeasures	- Structure is categorized as scour critical and is not scheduled for replacement; NBI comments in abutment and pier ratings indicate presence of scour holes	
Scheduled Maintenance		
Superstructure Washing	- When salt contaminated dirt and debris collected on superstructure is causing corrosion or deterioration by trapping moisture - <i>OR</i> in response to inspector's work recommendation	2 years
Vegetation Control	- When vegetation traps moisture on structural elements or is growing from joints or cracks	1 year

	- <i>OR</i> in response to inspector's work recommendation for brush cut	
Debris Removal	- When vegetation, debris, or sediment accumulates on the structure or in the channel - <i>OR</i> in response to inspectors' work recommendation	1 year
Drainage System Clean-Out/Repair	- When drainage system is clogged with debris or drainage elements are broken, deteriorated, or damaged	2 years
Spot Painting	For zinc-based paint systems only - In response to inspector's work recommendation	5 years
Seal Concrete Cracks/Joints	- Concrete is in good or fair condition, and cracks extend to the depth of the reinforcement - <i>OR</i> in response to inspector's work recommendation	5 years
Repair/Replace HMA Surface	- HMA surface is in poor condition - <i>OR</i> in response to inspector's work recommendation	
Seal HMA Cracks/Joints	- HMA surface is in good or fair condition, and cracks extend to the surface of the underlying slab or sub course - <i>OR</i> in response to inspector's work recommendation	
Minor Concrete Patching	- Repair minor delamination and spalling - <i>OR</i> in response to inspector's work recommendation	
Timber Repairs	- NBI Rating of 4 or less for timber members - <i>OR</i> to repair extensive rot, checking, or insect infestation	
Repair/Replace Guard Rail	- Guard rail missing or damaged - <i>OR</i> safety improvement is needed	
Repave Approaches	- HMA is in poor condition - <i>OR</i> in response to inspector's work recommendation	
Repair Slopes	- NBI Rating is 5 or lower - <i>OR</i> when slope is degraded or sloughed - <i>OR</i> slope paving has significant areas of distress, failure, or has settled	
Install Riprap	To protect surface when erosion threatens the stability of side slopes of channel banks	
Miscellaneous Repairs	Uncategorized repairs in response to inspector's work recommendation	

Gap Analysis

The VBCRC computes the estimated cost of each typical management and/or preservation action using unit prices in the latest *Bridge Repair Cost Estimate* spreadsheet contained in MDOT's *Local Bridge Program Call for Projects*. The cost of items of varying complexity, such as maintenance of traffic, staged construction, scour countermeasures, and so forth, are computed on a bridge-by-bridge basis. The cost estimates are reviewed and updated annually.

2. FINANCIAL RESOURCES

Anticipated Revenues

The VBCRC applied for federal funding in 2021 for the purpose of replacement and preventative maintenance for identified and selected bridges. The funding for these bridge projects is allocated per project with a schedule for completion from MDOT.

Other replacement, rehabilitation, and preventive maintenance projects will be submitted for state and/or local funding following federal funding allocations.

Any projects submitted to the local aid program that are not a selected for funding will be added to the agency's program.

Anticipated Expenses

Scheduled maintenance activities and minor repairs that are not affiliated with any applications, grants, or other funded projects will be performed by the agency's in-house maintenance forces and funded through the agency's annual operating budget.

3. RISK MANAGEMENT

The VBCRC recognizes that the potential risks associated with bridges generally fall into several categories:

- Personal injury and property damage resulting from a bridge collapse or partial failure;
- Loss of access to a region or individual properties resulting from bridge closures, restricted load postings, or extended outages for rehabilitation and repair activities; and
- Delays, congestion, and inconvenience due to serviceability issues, such as poor-quality riding surface, loose expansion joints, or missing expansion joints.

The VBCRC addresses these risks by implementing regular bridge inspections and a preservation strategy consisting of preventive maintenance.

The VBCRC administers the biannual inspection of its bridges in accordance with NBIS and MDOT requirements. The inspection reports document the condition of the VBCRC's bridges and evaluate them in order to identify new defects and monitor advancing deterioration. The summary inspection report identifies items needing follow-up, special inspection actions, and recommended bridge-by-bridge maintenance activities.

The preservation strategy identifies actions in the operations and maintenance plan that are preventive or are responsive to specific bridge conditions. The actions are prioritized to correct critical structural safety and traffic issues first, and then to address other needs based on the operational importance of each bridge and the long-term preservation of the network. The inspection results serve as a basis for modifying and updating the operations and maintenance plan annually.

APPENDIX

MDOT Bridge Safety Inspection Report:

https://www.michigan.gov/mdot/0,4616,7-151-87728_87844_87847_70812---,00.html

VBCRC Transportation Asset Management Plan:

<https://www.vbcrc.org/TAMP>



BOARD OF COUNTY ROAD COMMISSIONERS
BOARD OF COUNTY PARK TRUSTEES
BOARD OF PUBLIC WORKS

COMMISSIONERS:

W.C. Askew, Sr., Reginald D. Boze, Doug Burleson, Todd Hackenberg, Gregory H. Kinney

MANAGING DIRECTOR:

Daniel F. Bishop

Certification of Minutes

I, Jill K. Brien, Administrative Assistant-Board Secretary, certify the following is a true excerpt from the minutes of the October 7, 2021 meeting of the Board of County Road Commissioners of Van Buren County:

Motion by Boze, seconded by Hackenberg to adopt the Asset Management Plan of the Van Buren County Road Commission for submission to the TAMC, as presented, and to authorize the Managing Director to update the draft Plan, as may be necessary and/or required by TAMC.

Roll call vote:

Askew: AYE

Boze: AYE

Hackenberg: AYE

Kinney: AYE

Burleson: AYE

MOTION CARRIED.

 10-12-21
Jill K. Brien **Date**
Administrative Assistant-Board Secretary